

# Greater Returns from Cow-yearling Operations on Southwest Ranges

THOMAS M. STUBBLEFIELD

Assistant Agricultural Economist, University of Arizona, Tucson, Arizona

Next to "death and taxes" drought is about the most certain thing in the Southwest. Ranchers there do not know when to expect one, but if they have been in business long enough they will have experienced a drought.

The Southwest rancher's biggest headache is unstable range conditions. If a rancher has a cow-calf operation, he must try to adjust the size of his breeding herd to fit the forage production of the ranch. With a great variation in seasonal and annual rainfall he finds this a difficult feat.

If he needs to increase his breeding herd, he finds that his neighbors are doing the same. If he has to reduce it, he discovers the bottom has dropped out of the cow market.

Drought has probably forced more ranchers into bankruptcy than anything else. Normally, ranchers stock their ranges to typical carrying capacity. If a rancher does this, he expects to overgraze his range in dry years and to undergraze in wet years. In dry years he feeds supplement.

He has also discovered that severe overgrazing, continued year after year, depletes his range resource—his capital investment. Even when he does not do permanent injury by overgrazing, he will delay range recovery to normal (typical carrying capacity) at the start of a wet cycle.

## Cow-yearling Operations Offer Flexibility

Ranchers who have survived one or more droughts have found that FLEXIBILITY is the answer to drought. And the way it is done is for the rancher to reduce his

breeding herd to the size that can be carried on his range during the dry years. When rainfall is normal or above normal, the surplus feed and grazing capacity can be grazed by yearlings.

Two big questions to be answered in changing over to a cow-yearling operation are: How will this affect the total pounds of beef produced on the range? And, more important, what effect will the change have on gross and net income? Fixed costs would be the same. However, there would be a little additional cost in a cow-yearling operation when weaner calves are wintered with supplement.

Knox (1947) found that more beef could be produced per acre

by grazing yearling steers than by producing and selling weaners—32 percent more.

Reynolds (1954) reports that about 50 percent more income from 1939-1953 could have been realized by leasees on the Santa Rita Experimental Range if they had stocked their leases at a flexible rate rather than at a constant one.

McIlvain, *et al.* (1954) report that at the U. S. Southern Great Plains Field Station, Woodward, Oklahoma, only about 60 percent as much beef may be expected to be produced per unit of land on year-long grazing of breeding cows as was produced from continuous year-long grazing of steers. Heavy grazing of ranges was more detrimental to cows and calves than the same degree of grazing with steers.

## Comparison of Cow-calf and Cow-yearling Operations

This paper is based on a 300-cow breeding herd and the assumption that the range is not overstocked. Table 1 shows the expected production and income from such a herd.

Table 1. Estimated production and income from a 300-cow breeding herd, 1954-55

Kind of cattle	Time of sale	Number	Average weight	Pounds of beef		
				Price	Income	
			lbs.	cents	dollars	
Calf crop from breeding herd of 300 cows (83.7%)						
Steer calves .....	Nov.	120	410	49,200	19	9,348.00
Steer calves .....	May	6	400	2,400	20	480.00
Heifer calves .....	Nov.	61	350	21,350	17	3,629.50
Heifer calves .....	May	6	340	2,040	18	367.20
Replacement cut-backs .....						
		5	610	3,050	16	488.00
Replacement cut-backs .....						
		1	650	650	13	84.50
Calf crop from 52 replacement heifers (35%)						
Steer calves .....	Nov.	4	410	1,640	19	311.60
Steer calves .....	May	5	400	2,000	20	400.00
Heifer calves .....	Nov.	4	350	1,400	17	238.00
Heifer calves .....	May	5	340	1,700	18	306.00
Total .....				85,430		15,652.80

**Table 2. The number of animal-unit months required for a cow-calf operation of a breeding herd of 300 cows, and the number of animal-unit months required for a cow-yearling operation (300-cow breeding herd reduced 20 percent)**

Kind of cattle	Number		Animal units required per head	Months on range	Animal-unit months	
	cow-calf operation	cow-yearling operation			cow-calf operation	cow-yearling operation
Cows						
3-year olds.....	50	40	.95	12	570.0	456.0
4-year old & over.....	250	200	1.00	12	3,000.0	2,400.0
Calves.....	270	217	.25	6	405.0	325.2
Weaner calves.....	22	171	.45	6	59.4	461.4
Yearlings.....		171	.60	6		615.6
Replacement heifers.....	58	46	.45	6	156.6	124.2
Year. replacement heifers.....	57	46	.60	6	205.2	165.6
Long-year. repl. heifers.....	52	42	.75	6	234.0	189.0
2-year old repl. heifers.....	52	42	.85	6	265.2	214.2
Bulls.....	21	17	1.25	12	314.4	254.4
<b>Total.....</b>					<b>5,209.8</b>	<b>5,205.6</b>

The herd is estimated to have a calving percentage of 83.7 percent, which was the average calving percentage for a large ranch in southwestern New Mexico from 1944 through 1953. Approximately 5 percent of the calves are short-age and sold in the spring. The weights of calves used in Table 1 are actual weights at a given time for this southwestern New Mexico ranch. Breeding cows remain in the herd for 6 years; therefore, fifty 3-year-old heifers are placed in the breeding herd each year and 42 cows are sold. This allows for a death loss of approximately 2½ percent.

Eight percent of the replacements are cut back as yearlings and 2 percent are cut back as 2-year-olds. In order to place fifty 3-year-old heifers in the breeding herd each year, 58 heifer calves will have to be held back.

The bulls are turned in with the replacement heifers when they are approximately 16 months old. It is estimated that the calf crop from these heifers averages approximately 35 percent. (This is the approximate calving percentage of the replacement herd for the ranch in southwestern New Mexico.) Fifty-six percent of these calves are short-age and are sold in the spring.

At the outset it is necessary to determine how much the breeding herd would have to be reduced in order to carry the calves over to long-yearlings and still use the same amount of forage as did the

cow-calf operation. Table 2 shows the animal-unit months needed for the 300-breeding-cow herd, cow-calf operation, and a 240 breeding-cow, cow-yearling operation. The forage requirements for the cows, calves, weaner calves, etc., are based on those by Vinal and Semple, 1932. This table shows that a 20 percent reduction in the size of the breeding herd will be enough to provide forage for the yearlings.

#### Production and Income from Cow-yearling Operation

Table 3 shows the estimated production and income from a cow-yearling operation. In this table the 300-cow breeding herd projected in Table 1 was reduced by 20 percent. Table 3 indicates that a total of 120,610 pounds of beef could be produced from a cow-yearling operation; the estimated production from the cow-calf operation in Table 1 was 85,440 pounds of beef. Thus approximately 41 percent more beef is expected to be produced from the cow-yearling operation.

The estimated income for the cow-yearling operation shown in Table 3 amounts to \$20,846, or \$5,193 more than the estimated income from the cow-calf operation (Table 1). The estimated prices for the calves in Table 1 were the approximate prices received for calves during the fall of 1954 with a one cent per pound increase for the short-age calves to be sold in the spring of 1955. The prices in Table

3 were the approximate prices received for yearling steers and heifers in the fall of 1954 in Arizona. There was about one-cent spread between the yearling feeders and stocker calves in favor of the calves. However, it may be that a two-cent spread is more normal than the one-cent spread. If the estimated income in Table 3 were calculated with a two-cent spread between stocker calves and yearling feeders, the total cow-yearling income would be reduced to \$19,646.

The estimated average in Table 3 was determined for long-yearling steers by adding 325 pounds to the weaning weight of the steer calves. This was the average gain on the college ranch of the New Mexico Agricultural Experiment Station for the 10 years, 1937-1946. The weight for yearling heifers was estimated by adding 300 pounds of gain to the weaning weight. In the case of short-age yearling steers it is estimated that the steers gained 225 pounds from May to the middle of November, and that the short-age heifers gained 185 pounds.

Under the cow-yearling operations it is probable that the operator would feed a supplement to the weaner calves during the winter. However, it is likely that he would feed a supplement to his breeding herd most winters and a reduction in the size of the breeding herd will reduce the amount of supplement needed. If the rancher supplemented the winter range un-

**Table 3. Estimated production and income from cow-yearling operation (breeding herd for cow-calf operation reduced 20 percent)**

Kind of cattle	Number	Average weight	Pounds of beef	Price	Income
		<i>lbs.</i>		<i>cents</i>	<i>dollars</i>
Calf crop from breeding herd of 240 cows (83.7%)					
Long-yearling steers <sup>1</sup> .....	96	735	69,825	18	12,568.50
Yearling steers <sup>2</sup> .....	5	625	3,125	18	562.50
Long-yearling heifers .....	49	650	31,850	16	5,096.00
Yearling heifers <sup>3</sup> .....	5	520	2,600	16	416.00
Replacement cut-backs .....	4	610	2,440	16	390.40
Replacement cut-backs .....	1	650	650	13	84.50
Calf crop from 46 replacement heifers (35%)					
Long-yearling steers <sup>1</sup> .....	4	735	2,940	18	529.20
Yearling steers <sup>2</sup> .....	4	625	2,500	18	450.00
Long-yearling heifers .....	4	650	2,600	16	416.00
Yearling heifers <sup>3</sup> .....	4	520	2,080	16	332.80
Total .....			120,610		20,845.90

<sup>1</sup>Less 1% death loss.<sup>2</sup>Yearling steers are the short-age steer calves normally sold in spring in a cow-calf operation.<sup>3</sup>Yearling heifers are the short-age heifer calves normally sold in spring in a cow-calf operation.

der both types of operations, it would require approximately 6.7 more tons of cottonseed cake for the cow-yearling operation.

The rancher would, however, have some savings on a cow-yearling operation as compared to a cow-calf operation. He would need four less bulls. Since the bulls would be used for a period of five years, it is probable that he would save about \$150 a year in cost of bulls. He would not have the depreciation costs on 60 cows. At the present time he would probably save around \$300 a year on these depreciation costs. Thus the cost for supplemental feed for weaner calves would almost be offset by the savings on depreciation costs of the breeding herd.

### Limitations

From the foregoing discussion it appears that it would be a simple matter to change from the cow-calf to a cow-yearling operation and make money. However, the actual change-over may be more difficult. In many instances the rancher is financing his production on a yearly basis and has to meet his financial obligations each fall. In order to change over to a cow-yearling operation he would have to be able

to finance his production cost over a 2-year period. Assuming that range conditions were constant he would have only one-fifth as many calves but 2½ times as many cows to sell the fall he makes the transition. In many instances the return from the sale of these animals would hardly meet the obligations of many ranchers.

Also, the rancher would have to have separate pastures for his yearling heifers in order to prevent some of them from breeding. He might spay the heifers in order to get around this obstacle. However, whether or not spaying pays is not definitely known yet.

Another situation confronting ranchers is the possibility of a price decline. With present cattle numbers at an all time high, a rancher might find it more desirable to sell when he is receiving a relatively good price, rather than wait to sell a year later when he is not so sure of the price.

### Summary

Maximum beef production on Southwestern ranges demands flexibility in the rate of stocking in order to adjust to variations in the amount of available range forage which result from fluctuations in

rainfall. More flexibility can be obtained by reducing the size of the breeding herd so that the range forage will be adequate to carry the herd during the years that the rainfall is below normal. During the years that the rainfall is normal or above, the remaining forage can be used to graze yearlings. A 20 percent decrease in the size of the breeding herd, if the range is stocked at the typical carrying capacity, will usually provide enough forage to carry the weaner calves over to long-yearlings.

Not only will the cow-yearling operation give more flexibility in stocking, but more pounds of beef will be produced than with a cow-calf operation. Gross income will be increased, and even if there is a 2-cent spread between the price of stocker calves and long-yearlings, in favor of the stocker calves, such income should be 25 percent greater from the cow-yearling operation.

However, there are some obstacles to changing over to a cow-yearling production program. The change-over may be difficult to finance. The rancher may have to divide his pastures. There is always the danger of a price drop.

The rancher will have to take these obstacles into consideration if he is contemplating a change from a cow-calf to cow-yearling operation. Before he changes over he might also make a calculation similar to that in Tables 1 and 3 in order to estimate the profitability of such a conversion under his particular situation.

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